Biotechnology and Bioengineering

Volume 89, 2005

January 5, 2005

1 Continuous Perfusion Microfluidic Cell Culture Array for High-Throughput Cell-Based Assays
P.J. Hung, P.J. Lee, P. Sabounchi, R. Lin, and L.P. Lee
Published online 3 December 2004

9 Broad-Spectrum Protein Biosensors for Class-Specific Detection of Antibiotics
C.C. Weber, N. Link, C. Fux, A.H. Zisch, W. Weber, and M. Fussenegger
Published online 3 December 2004

18 Enhanced Biotransformations and Product Recovery in a Membrane Bioreactor Through Application of a Direct Electric Current
R. Mustacchi, C.J. Knowles, H. Li, I. Dalrymple, G. Sunderland, W. Skibar, and S.A. Jackman
Published online 3 December 2004

24 Monitoring of Active But Non-Culturable Bacterial Cells by Flow Cytometry
R. Sachidanandham, K. Yew-Hoong Gin, and C. Laa Poh
Published online 11 November 2004

32 Molecular and Phase Toxicity of Compressed and Supercritical Fluids in Biphasic Continuous Cultures of *Clostridium thermocellum*
G.D. Bothun, B.L. Knutson, H.J. Strobel, and S.E. Nokes
Published online 11 November 2004

42 Enhancing the Electron Transfer Capacity and Subsequent Color Removal in Bioreactors by Applying Thermophilic Anaerobic Treatment and Redox Mediators
A.B. dos Santos, J. Traverse, F.J. Cervantes, and J.B. van Lier
Published online 11 November 2004

53 Inferring Gene Regulatory Relationships by Combining Target–Target Pattern Recognition and Regulator-Specific Motif Examination
H. Wei and Y. Kaznessis
Published online 11 November 2004

78 The Competition Between Protein Folding and Aggregation: Off-Lattice Minimalist Model Studies
T. Cellmer, D. Bratko, J.M. Prausnitz, and H. Blanch
Published online 11 November 2004

88 Hydrolytic Resolution of (*R,S*)-Naproxen 2,2,2-Trifluoroethyl Thioester by *Carica papaya* Lipase in Water-Saturated Organic Solvents
I.-S. Ng and S.-W. Tsai
Published online 12 November 2004

96 Growth of *Leuconostoc mesenteroides* NRRL-B523 in an Alkaline Medium: Suboptimal pH Growth Inhibition of a Lactic Acid Bacterium
B.F. Wolf and H.S. Fogler
Published online 11 November 2004

102 Causes of Proteolytic Degradation of Secreted Recombinant Proteins Produced in Methylotrophic Yeast *Pichia pastoris*: Case Study With Recombinant Ovine Interferon-τ
J. Sinha, B.A. Plantz, M. Inan, and M.M. Meagher
Published online 3 December 2004

113 Anaerobic Degradation of Solid Material: Importance of Initiation Centers for Methanogenesis, Mixing Intensity, and 2D Distributed Model
V.A. Vavilin and I. Angelidaki
Published online 11 November 2004

COMMUNICATION TO THE EDITOR

123 A Biocatalyst for the Removal of Sulfite From Alcoholic Beverages
S.-C. Lin and G. Georgiou
Published online 11 November 2004

January 20, 2005

129 Fractionation of Cell Mixtures Using Acoustic and Laminar Flow Fields
M. Kumar, D.L. Feke, and J.M. Belovich
Published online 7 December 2004

138 Development of a Small-Scale Bioreactor: Application to In Vivo NMR Measurement
D. Gmati, J. Chen, and M. Jolicoeur
Published online 6 December 2004

148 Genetic Reconstruction of the Aerobic Central Metabolism in *Escherichia coli* for the Absolute Aerobic Production of Succinate
H. Lin, G.N. Bennett, and K.-Y. San
Published online 12 November 2004

157 Low-Temperature Pausing of Cultivated Mammalian Cells
L. Hunt, D.L. Hacker, F. Grosjean, M. De Jesus, L. Uebersax, M. Jordan, and F.M. Wurm
Published online 6 December 2004

164 Impact of Dynamic Online Fed-Batch Strategies on Metabolism, Productivity and N-Glycosylation Quality in CHO Cell Cultures
D.C.F. Wong, K.T.K. Wong, L.T. Goh, C.K. Heng, and M.G.S. Yap
Published online 8 December 2004

178 Effects of Acetate and Propionate on the Performance of a Photosynthetic Biofilm Reactor for Sulfide Removal
T.J. Hurse and J. Keller
Published online 6 December 2004

188 Transient Expression in Tobacco Leaves of an Aglycosylated Recombinant Antibody Against the Epidermal Growth Factor Receptor
M. Rodríguez, N.I. Ramírez, M. Ayala, F. Freyre, L. Pérez, A. Triguero, C. Mateo, G. Selman-Housein, J.V. Gavilondo, and M. Pujol
Published online 6 December 2004

195 Engineering HlyA Hypersecretion in *Escherichia coli* Based on Proteomic and Microarray Analyses
P.S. Lee and K.H. Lee
Published online 3 December 2004

206 Production and Secretion of Recombinant *Leuconostoc mesenteroides* Dextransucrase DsrS in *Bacillus megaterium*
M. Malten, R. Hollmann, W.-D. Deckwer, and D. Jahn
Published online 7 December 2004

219 Transient Expression and Flux Changes During a Shift From High to Low Riboflavin Production in Continuous Cultures of *Bacillus subtilis*
N. Zamboni, E. Fischer, A. Muffler, M. Wyss, H.-P. Hohmann, and U. Sauer
Published online 6 December 2004

233 Optimization of Biomass, Vitamins, and Carotenoid Yield on Light Energy in a Flat-Panel Reactor Using the A-Stat Technique
M.J. Barbosa, J.W. Zijffers, A. Nisworo, W. Vaes, J. van Schoonhoven, and R.H. Wijffels
Published online 8 December 2004

243 Estimating Optimal Profiles of Genetic Alterations Using Constraint-Based Models
K.G. Gadkar, F.J. Doyle III, J.S. Edwards, and R. Mahadevan
Published online 7 December 2004

February 5, 2005

253 Bone Repair With a Form of BMP-2 Engineered for Incorporation Into Fibrin Cell Ingrowth Matrices
H.G. Schmoekel, F.E. Weber, J.C. Schense, K.W. Grätz, P. Schawalder, and J.A. Hubbell
Published online 23 December 2004

263 Mechanistic Study of Membrane Concentration and Recovery of *Listeria monocytogenes*
W.-T. Chen, R.L. Hendrickson, C.-P. Huang, D. Sherman, T. Geng, A.K. Bhunia, and M.R. Ladisch
Published online 21 December 2004

274 Synthesis of Ag/BSA Composite Nanospheres from Water-in-Oil Microemulsion Using Compressed CO_2 as Antisolvent
J. Zhang, B. Han, J. Chen, Z. Li, Z. Liu, and W. Wu
Published online 22 December 2004

280 In Situ Extraction Strategy Affects Benzophenanthridine Alkaloid Production Fluxes in Suspension Cultures of *Eschscholtzia Californica*
M. Klvana, R. Legros, and M. Jolicoeur
Published online 22 December 2004

290 Nonaggregating Refolding of Ribonuclease A Using Reverse Micellar Dialysis
T. Ono, M. Nagatomo, T. Nagao, H. Ijima, and K. Kawakami
Published online 29 December 2004

296 Engineering Hepatocellular Morphogenesis and Function via Ligand-Presenting Hydrogels With Graded Mechanical Compliance
E.J. Semler, P.A. Lancin, A. Dasgupta, and P.V. Moghe
Published online 22 December 2004

308 Quantification of Oxygen Release by Bulrush (*Scirpus validus*) Roots in a Constructed Treatment Wetland
A.N. Bezbaruah and T.C. Zhang
Published online 22 December 2004

319 Modeling of a Vapor-Phase Fungi Bioreactor for the Abatement of Hexane: Fluid Dynamics and Kinetic Aspects
G. Spigno and D.M. De Faveri
Published online 23 December 2004

329 Low-Cost Noninvasive Optical CO_2 Sensing System for Fermentation and Cell Culture
X. Ge, Y. Kostov, and G. Rao
Published online 29 December 2004

335 Protein Production and Induction of the Unfolded Protein Response in *Trichoderma reesei* Strain Rut-C30 and Its Transformant Expressing Endoglucanase I With a Hydrophobic Tag
A. Collén, M. Saloheimo, M. Bailey, M. Penttilä, and T.M. Pakula
Published online 22 December 2004

345 Effect of Culture pH on Erythropoietin Production by Chinese Hamster Ovary Cells Grown in Suspension at 32.5 and 37.0°C
S.K. Yoon, S.L. Choi, J.Y. Song, and G.M. Lee
Published online 29 December 2004

357 Effects of pH Amendment on Metal Working Fluid Wastewater Biological Treatment Using a Defined Bacterial Consortium
C.J. van der Gast and I.P. Thompson
Published online 29 December 2004

COMMUNICATION TO THE EDITOR

367 Effect of Nitric Oxide on Catharanthine Production and Growth of *Catharanthus roseus* Suspension Cells
M. Xu, J. Dong, and M. Zhu
Published online 22 December 2004

372 In Appreciation

February 20, 2005

373 Novel Application of Oxygen-Transferring Membranes to Improve Anaerobic Wastewater Treatment
A.S. Kappell, M.J. Semmens, P.J. Novak, and T.M. LaPara
Published online 10 January 2005

381 Affinity-Enhanced Protein Partitioning in Decyl β-D-Glucopyranoside Two-Phase Aqueous Micellar Systems
H. Lam, M. Kavoosi, C.A. Haynes, D.I.C. Wang, and D. Blankschtein
Published online 10 January 2005

393 Relationships Between Hydrodynamics and Rheology of Flocculating Yeast Suspensions in a High-Cell-Density Airlift Bioreactor
J. Klein, J. Maia, A.A. Vicente, L. Domingues, J.A. Teixeira, and M. Juraščík
Published online 5 January 2005

400 Orbital Shaker Technology for the Cultivation of Mammalian Cells in Suspension
N. Muller, P. Girard, D.L. Hacker, M. Jordan, and F.M. Wurm
Published online 23 December 2004

407 Maintaining Rapid Growth in Moderate-Density *Escherichia coli* Fermentations
J. Zawada and J. Swartz
Published online 5 January 2005

416 Cyclodextrin–Polyethylenimine Conjugates for Targeted In Vitro Gene Delivery
M. Laird Forrest, N. Gabrielson, and D.W. Pack
Published online 30 December 2004

424 Improvement of the Production of GFP_{uv}-β1,3-*N*-Acetylglucosaminyltransferase 2 Fusion Protein Using a Molecular Chaperone-Assisted Insect-Cell-Based Expression System
T. Kato, T. Murata, T. Usui, and E.Y. Park
Published online 17 December 2004

434 Synthesis of Galacto-oligosaccharide From Lactose Using β-Galactosidase From *Kluyveromyces lactis*: Studies on Batch and Continuous UF Membrane-Fitted Bioreactors
S. Chockchaisawasdee, V.I. Athanasopoulos, K. Niranjan, and R.A. Rastall
Published online 30 December 2004

444 Impact of External Calcium and Calcium Sensors on Ginsenoside Rb_1 Biosynthesis by *Panax notoginseng* Cells
C.-J. Yue and J.-J. Zhong
Published online 30 December 2004

453 Culture of *Escherichia coli* Under Dissolved Oxygen Gradients Simulated in a Two-Compartment Scale-Down System: Metabolic Response and Production of Recombinant Protein
E.A. Sandoval-Basurto, G. Gosset, F. Bolívar, and O.T. Ramírez
Published online 17 December 2004

464 Baculovirus as a Highly Efficient Gene Delivery Vector for the Expression of Hepatitis Delta Virus Antigens in Mammalian Cells
K.-C. Wang, J.-C. Wu, Y.-C. Chung, Y.-C. Ho, M.D.-T. Chang, and Y.-C. Hu
Published online 17 December 2004

474 Antibacterial and Antifungal Efficacy of Surface Functionalized Polymeric Beads in Repeated Applications
F.X. Hu, K.G. Neoh, L. Cen, and E.T. Kang
Published online 17 December 2004

485 Biosynthesis Reaction Mechanism and Kinetics of Deoxynucleoside Triphosphates, dATP and dGTP
J. Bao and D.D.Y. Ryu
Published online 10 January 2005

March 5, 2005

493 Analysis of Flow in a Cone-and-Plate Apparatus With Respect to Spatial and Temporal Effects on Endothelial Cells
M.H. Buschmann, P. Dieterich, N.A. Adams, and H.-J. Schnittler
Published online 12 January 2005

503 Rapid Expression of Vaccine Proteins for B-Cell Lymphoma in a Cell-Free System
J. Yang, G. Kanter, A. Voloshin, N. Michel-Reydellet, H. Velkeen, R. Levy, and J.R. Swartz
Published online 24 January 2005

512 Development, Parallelization, and Automation of a Gas-Inducing Milliliter-Scale Bioreactor for High-Throughput Bioprocess Design (HTBD)
R. Puskeiler, K. Kaufmann, and D. Weuster-Botz
Published online 24 January 2005

524 Effect of Cycle Time on Fungal Morphology, Broth Rheology, and Recombinant Enzyme Productivity During Pulsed Addition of Limiting Carbon Source
S. Bhargava, K.S. Wenger, K. Rane, V. Rising, and M.R. Marten
Published online 10 January 2005

530 Selection of High-Producing CHO Cells Using NPT Selection Marker With Reduced Enzyme Activity
K. Sautter and B. Enenkel
Published online 24 January 2005

539 Riboflavin- and Cobalamin-Mediated Biodegradation of Chloroform in a Methanogenic Consortium
C. Guerrero-Barajas and J.A. Field
Published online 24 January 2005

551 Large-Scale Purification of Oligonucleotides by Extraction and Precipitation With Butanole
C. Wolfrum, A. Josten, G. Bauer, and P. Götz
Published online 17 December 2004

556 Effect of Oxygen on the *Escherichia coli* ArcA and FNR Regulation Systems and Metabolic Responses
S.S. Levanon, K.-Y. San, and G.N. Bennett
Published online 24 January 2005

565 TGF-β1 Regulation in Hepatocyte-NIH3T3 Co-Culture Is Important for the Enhanced Hepatocyte Function in 3D Microenvironment
S.-M. Chia, P.-C. Lin, and H. Yu
Published online 24 January 2005

574 Quantitative and Kinetic Study of Oxidative Stress Regulons Using Green Fluorescent Protein
C. Lu, C.R. Albano, W.E. Bentley, and G. Rao
Published online 25 January 2005

588 Coexpression in Yeast of *Taxus* Cytochrome P450 Reductase With Cytochrome P450 Oxygenases Involved in Taxol Biosynthesis
S. Jennewein, H. Park, J.M. DeJong, R.M. Long, A.P. Bollon, and R.B. Croteau
Published online 25 January 2005

599 High-Throughput Measurement of Protein Stability in Microtiter Plates
J.P. Aucamp, A.M. Cosme, G.J. Lye, and P.A. Dalby
Published online 25 January 2005

608 Aerobic Biodegradation of N-Nitrosodimethylamine (NDMA) by Axenic Bacterial Strains
J.O. Sharp, T.K. Wood, and L. Alvarez-Cohen
Published online 25 January 2005

March 20, 2005

619 Characteristics of *Saccharomyces cerevisiae gal1*Δ and *gal1*Δ*hxk2*Δ Mutants Expressing Recombinant Proteins From the *GAL* Promoter
H.A. Kang, W.K. Kang, S.-M. Go, A. Rezaee, S.H. Krishna, S.K. Rhee, and J.-Y. Kim
Published online 4 February 2005

630 Impact of Membrane Solid–Liquid Separation on Design of Biological Nutrient Removal Activated Sludge Systems
M. Ramphao, M.C. Wentzel, R. Merritt, G.A. Ekama, T. Young, and C.A. Buckley
Published online 4 February 2005

647 Effects of Immobilization by Entrapment in Alginate and Scale-Up on Paclitaxel and Baccatin III Production in Cell Suspension Cultures of *Taxus baccata*
S. Bentebibel, E. Moyano, J. Palazón, R.M. Cusidó, M. Bonfill, R. Eibl, and M.T. Piñol
Published online 4 February 2005

656 Biodiversity Analysis of Microbial Community in the Chem-Bioflocculation Treatment Process
S. Xia, F. Wang, Y. Fu, D. Yang, and X. Ma
Published online 26 January 2005

660 Novel Approach to Quantify Immobilized-Enzyme Distributions
J.L. van Roon, E. Groenendijk, H. Kieft, C.G.P.H. Schroën, J. Tramper, and H.H. Beeftink
Published online 26 January 2005

670 Group-Specific Primer and Probe Sets to Detect Methanogenic Communities Using Quantitative Real-Time Polymerase Chain Reaction
Y. Yu, C. Lee, J. Kim, and S. Hwang
Published online 4 February 2005

680 Dual Substrate Biodegradation of a Nonionic Surfactant and Pentachlorophenol by *Sphingomonas chlorophenolica* RA2
A.R. Bielefeldt and T. Cort
Published online 31 January 2005

690 Use of the Cell Wall Protein Pir4 as a Fusion Partner for the Expression of *Bacillus* sp. BP-7 Xylanase A in *Saccharomyces cerevisiae*
I. Andrés, O. Gallardo, P. Parascandola, F.I. Javier Pastor, and J. Zueco
Published online 31 January 2005

698 Oxygen Transfer Phenomena in 48-Well Microtiter Plates: Determination by Optical Monitoring of Sulfite Oxidation and Verification by Real-Time Measurement During Microbial Growth
F. Kensy, H.F. Zimmermann, I. Knabben, T. Anderlei, H. Trauthwein, U. Dingerdissen, and J. Büchs
Published online 4 February 2005

709 Signal-Amplifying Genetic Circuit Enables In Vivo Observation of Weak Promoter Activation in the Rhl Quorum Sensing System
D. Karig and R. Weiss
Published online 7 January 2005

719 Flow Pattern Visualization in a Mimic Anaerobic Digester Using CFD
M.S. Vesvikar and M. Al-Dahhan
Published online 31 January 2005

733 Column Flow Reactor Using Acetohydroxyacid Synthase I From *Escherichia coli* as Catalyst in Continuous Synthesis of *R*-Phenylacetyl Carbinol
S. Engel, M. Vyazmensky, D. Berkovich, Z. Barak, J. Merchuk, and D.M. Chipman
Published online 31 January 2005

March 30, 2005

743 Role of Nutrient Supply on Cell Growth in Bioreactor Design for Tissue Engineering of Hematopoietic Cells
P. Pathi, T. Ma, and B.R. Locke
Published online 4 February 2005

759 Effects of Process Stability on Anaerobic Biodegradation of LAS in UASB Reactors
T. Løbner, L. Toräng, D.J. Batstone, J.E. Schmidt, and I. Angelidaki
Published online 4 February 2005

766 Oxygen Transport and Cell Viability in an Annular Flow Bioreactor: Comparison of Laminar Couette and Taylor-Vortex Flow Regimes
S.J. Curran and R.A. Black
Published online 4 February 2005

775 Host Limits to Accurate Human Growth Hormone Production in Multiple Plant Systems
D.A. Russell, L.A. Spatola, T. Dian, V.M. Paradkar, D.R. Dufield, J.A. Carroll, and M.R. Schlittler
Published online 4 February 2005

783 Affinity Capture of a Biotinylated Retrovirus on Macroporous Monolithic Adsorbents: Towards a Rapid Single-Step Purification Process
S.L. Williams, M.E. Eccleston, and N.K.H. Slater
Published online 10 January 2005

788 Kefir Yeast Technology: Scale-Up in SCP Production Using Milk Whey
A.A. Koutinas, I. Athanasiadis, A. Bekatorou, M. Iconomopoulou, and G. Blekas
Published online 1 February 2005

797 Production of High-Purity Isomalto-Oligosaccharides Syrup by the Enzymatic Conversion of Transglucosidase and Fermentation of Yeast Cells
Y.-C. Pan and W.-C. Lee
Published online 25 January 2005

805 eIF2α Phosphorylation, Stress Perception, and the Shutdown of Global Protein Synthesis in Cultured CHO Cells
M.F. Underhill, J.R. Birch, C.M. Smales, and L.H. Naylor
Published online 1 February 2005

815 Bioelectrocatalytic Signaling From Immunosensors with Back-Filling Immobilization of Glucose Oxidase on Biorecognition Surfaces
B.Y. Won, H.G. Choi, K.H. Kim, S.Y. Byun, H.-S. Kim, and H.C. Yoon
Published online 1 February 2005

822 Magnetic Resonance Microscopy Analysis of Advective Transport in a Biofilm Reactor
E.L. Gjersing, S.L. Codd, J.D. Seymour, and P.S. Stewart
Published online 4 February 2005

835 Immobilization of Single-Stranded DNA by Self-Assembled Polymer on Gold Substrate for a DNA Chip
S. Taira and K. Yokoyama
Published online 2 February 2005

839 Dynamics of Intracellular Metabolites of Glycolysis and TCA Cycle During Cell-Cycle-Related Oscillation in *Saccharomyces cerevisiae*
C. Wittmann, M. Hans, W.A. van Winden, C. Ras, and J.J. Heijnen
Published online 2 February 2005

848 Production of *Desmodus rotundus* Salivary Plasminogen Activator α1 (DSPAα1) in Tobacco is Hampered by Proteolysis
A. Schiermeyer, H. Schinkel, S. Apel, R. Fischer, and S. Schillberg
Published online 31 January 2005

859 Indexes to Volume 89